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ABSTRACT

Elicited imitation occurs in an experimental situation during which subjects are requested to repeat a model sentence constructed so as to include specific desired grammatical structures. Elicited translation involves giving subjects a sentence in one language, and asking them to say the same thing, but in another language; elicited translation may work from native language to second language or vice versa. This study finds both methods useful as indicators of second language competence. Imitation taps both comprehension and production; data obtained through imitation may be interpreted to determine the stage of acquisition of a given structure. Translation also taps aspects of second language competence, although additional investigation is needed into the translation process itself and into other variations of the translation task. (Author/DB)

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Alternatives to Spontaneous Speech: Elicited Translation and Imitation as Indicators of Second Language Competence

Merrill Swain, Guy Dumas & Neil Naiman

The collection and analyses of spontaneous speech data have been undertaken by researchers interested in describing first language competence (e.g., Brown, 1973). From spontaneous speech data, the speaker's knowledge of a language and the strategies used in learning the language have been inferred. However, there are a number of difficulties inherent in such a data collection technique. Because of these difficulties, a group of us at the Ontario Institute for Studies in Education have been investigating alternative data collection methods which we hoped would yield a maximum amount of information concerning second language competence with a minimum of effort. What we want to do today is describe some of the alternative techniques we have investigated in looking at second language competence and provide you with some findings related to these techniques. Before doing that, let us look first at two major problems involved with the collection and analyses of spontaneous speech data.

In the first place, to make an exhaustive description of an individual's grammar involves the collection of a great deal of data, much of which is redundant. Furthermore, the description of an infinite amount of speech data would reflect only part of the speaker's competence, since his ability to comprehend the language exceeds his ability to speak it.

Secondly, assuming that the researcher's goal is to verify the stage of acquisition of a specific syntactic rule, the researcher is likely to encounter a great deal of frustration trying to collect relevant spontaneous speech data, particularly if the rule is not yet in the child's production

grammar. Needless to say, this problem is particularly serious when the subject has developed alternative means of expression in order to avoid the use of a rule perceived to be difficult (for whatever reason: linguistic complexity, pronunciation difficulties, etc). This is probably the case for both first and second language acquisition studies. It is simply more obvious in the case of second language learners.

Our group at OISE (Swain, Dumas, Naiman, Barik) has been investigating alternatives to the collection of spontaneous speech data as indications of second language competence. Part of our motivation for doing so centers around the fact that we are involved in the evaluation of an innovative educational program for the teaching of French as a second language. The program itself has come to be known as a "French immersion program". Basically, this means that native English-speaking children start their schooling in French. That is to say, from the time they begin their formal education, they are taught their entire curriculum in French. They learn to read and write first in French. In grade 2 or 3, a portion of their school day is devoted to the teaching of English Language Arts. We have been asked, among other things, to evaluate the French listening and speaking skills of students in this type of program. Thus, we developed a French Comprehension Test for these purposes (Barik, Swain, Dumas, Naiman & Gundlack, 1974) and have experimented with alternatives to the collection of spontaneous speech samples for the very practical reason that our budget in the long run could not stand the enormous amount of time and effort involved in relying on the collection and analyses of spontaneous speech samples in order to measure the level of linguistic competence in the second language. The alternatives we have been looking at, and that we want to discuss today, include elicited imitation and translation. We begin with a description of elicited imitation and translation and then show how these tools can be used to indicate second language competence.

Elicited Imitation

Elicited imitation must be distinguished from natural imitation wherein children repeat utterances, without request, in a natural setting. Elicited imitation, on the other hand, occurs in an experimental situation during which Ss are requested to repeat a model sentence constructed in order

to include specific grammatical structures.

In 1963, Fraser, Bellugi and Brown reported the results of an experiment in which elicited imitation was used as a technique to obtain information on children's first language competence. They concluded that correct imitation did not necessarily involve comprehension of the grammatical structures embedded in the model sentence. They suggested that imitation was no more than a perceptual-motor skill. Their claim concerning the nature of imitation was probably attributable to the short length of the model sentences they had used in their experiments. Indeed, it appears that sentences which are short enough to be within the Ss' immediate memory span do not need to be grammatically or semantically processed in order to be accurately repeated.

Other psycholinguists have taken a different position on the nature of imitation. Menyuk (1969) used imitation as an experimental tool and found that in most cases children were only able to imitate correctly structures they could comprehend and produce spontaneously. Ervin-Tripp (1970) maintained that correct imitation involved both lexical and syntactic processing provided that the model sentence was beyond the immediate memory capacity of the subject. Slobin (1973) argued against the claim that imitation was merely a perceptual-motor skill, and suggested that beyond certain limits of length and complexity, comprehension was a necessary condition to correct imitation of the model sentence. He also showed that in an imitation task, Ss processed certain structures but produced them differently than given in the original model sentence, suggesting that the children's comprehension went beyond their ability to produce the utterance.

Naiman (1973) conducted a series of experiments where he used elicited imitation as a technique to study the second language competence of English-speaking children enrolled in a French immersion program. Among other things, he investigated the relationship of imitation to both comprehension and production. For his study, 112 children from grades one and two French immersion classes were randomly chosen. They were required to imitate, understand and produce sentences containing several selected syntactic structures (direct and indirect object nouns and pronouns, and past tense). The sentences were beyond immediate memory span in order to prevent Ss from imitating them in a strictly rote fashion. Translation from

L_2 to L_1 was used as a measure of second language comprehension; translation from L_1 to L_2 was used as a measure of second language production. A picture-identification task was also used as a comprehension measure and a spontaneous production task was used as a measure of second language oral production. An example of the type of sentence used in the imitation task is "Après le repas ma soeur lui a lancé une petite pomme".

Naiman concluded that accurate imitation of the syntactic structures involves first decoding of the structure, followed by encoding according to the child's own productive system. Evidence supporting his conclusion is reflected in several of the results of the study. First, for none of the five syntactic structures tested was performance on the imitation task greater than performance on the comprehension task. In addition, a rank ordering was done for the performance of Ss on four of the syntactic structures (direct and indirect objects) on both imitation and comprehension tasks. This ordering was the same for both imitation and comprehension tasks.

Another result that suggested that imitation includes as a first step the decoding of the sentence was based on the inter-group comparison between Ss of Group 1 and 2. Ss of Group 1 were given a combined imitation and comprehension task and were told by the experimenter before each sentence was presented to them whether it was their task to comprehend (translate from L_2 to L_1) or imitate the sentence. Ss of Group 2 received the same combined task, but were not told whether they were to imitate or translate until after the sentence had been presented to them. If there are differences in performance on either the imitation task or the comprehension task between Ss of Group 1 and those of Group 2, one might conclude that their knowing ahead of time whether they were to imitate or to decode would initiate different processing strategies. If, on the other hand, there are no differences on either the imitation task or the comprehension task between Ss of Group 1 and those of Group 2, one might conclude that the differences in task requirements were irrelevant, and that the Ss approached the task of imitation and comprehension in the same way. This in fact seemed to be the case. There were no differences in performance on the comprehension tasks or on the imitation tasks between the two groups. Thus we can conclude that both tasks involve an initial decoding stage. However, differences existed between performance on imitation and performance on comprehension for Ss of both these groups - comprehension always being superior to imitation. The differences in performance between

imitation and comprehension would appear to result from the final or encoding stage of processing.

Let us examine the results which substantiate this claim. If encoding in imitation draws on the production system of the child, then the performance on a production task which also draws on the production system of the child should not exceed performance on the imitation task. Performance on imitation, however, may occasionally exceed that on production because the extra memory aid of having the correct structure present in the model sentence to be imitated allows the S to imitate structures which are just emerging in his production system, structures he rarely is able to produce spontaneously. This hypothesis was confirmed for all the syntactic structures employed in Naiman's study for Ss of all groups. That encoding in imitation was similar to encoding in production was also evident from the similarity of the rank-ordering of the structures (direct and indirect objects) in terms of performance on the imitation and production tasks.

In addition, many of the errors produced by Ss in imitation were also produced by Ss in both spontaneous production and on the translation task (L_1 to L_2) used as a measure of production. For example, 75% of the children who imitated the past tense by " a " the third person of the present tense of the main verb" made the same error in the production task.

Examples: Il a lance
Il a met
Il a donne

Also, 69% of the Ss who inverted pronoun objects in imitation made similar inversions in production.

Examples: La soeur lance lui une pomme.
Maman met les sur la table.

In sum, these findings lead us to reject the view held by Fraser, Bellugi and Brown (1963) and others that imitation is only a perceptual-motor skill. Imitation of supra-memory span sentences involves both decoding and encoding, and as such is a valid source of information about productive competence and a conservative estimate of comprehension competence.

Elicited Translation

Before specifying further what elicited imitation can indicate about second language competence, let us examine the notion of elicited translation.

Besides studies where word-association tasks were used across languages, no studies that we know of have been reported in the literature which use translation as a means of tapping language competence. There seems to have been almost no research investigating such questions as "What are the cognitive mechanisms involved in the process of oral translation or interpretation? What are the requirements of a translation task upon Ss?" Nevertheless, we feel there are rewarding investigations to be undertaken using such techniques as elicited translation as a means of obtaining information on a speaker's competence in a second language.

Elicited translation involves giving the S a sentence in one language e.g., French, and asking him to say the same thing, but in another language e.g., English. It seems most likely that a correct translation necessitates decoding of the source language (SL), followed by encoding in the target language (TL), both operations being carried through the S's own comprehension and production systems in SL and TL respectively. In a translation task where the TL is the S's stronger language i.e., his native language (L_1), it would be reasonable to believe that such a task could be used to measure the S's comprehension of the SL which would in this case be his second language. And vice versa - a translation task where the TL is the S's weaker language i.e., his second language (L_2), could be used to measure the S's production in the TL. In both types of task, it is assumed that the S's comprehension and production of his native language is not a variable. This is the reasoning upon which Naiman based his use of translation techniques as means of measuring second language production (L_1 to L_2) and comprehension (L_2 to L_1) in the study reported earlier. Results of his study supported the merits of these techniques.

For example, the results of an inter-group comparison between Ss whose second language comprehension was measured by a picture-identification task and Ss whose comprehension of the same sentences was measured by a translation task (L_2 to L_1) showed that there was no significant difference in performance. Furthermore, many of the errors that Ss made on the second language spontaneous production task were the same as those they made on the translation-production task (L_1 to L_2). In addition, a recent study by Dumas and Swain (1973) demonstrated that when young second language learners similar to the ones in Naiman's study were given English translations of their own French spontaneous productions and asked to translate these utterances into French, 75% of their translations matched their original spontaneous productions.

The type of translation task used in Naiman's and Dumas and Swain's studies was perhaps somewhat artificial in the sense that the Ss were directly requested by the experimenter to say in the other language the same thing as they heard in the model sentence. When the model sentence was given in French, Ss were expected to say the same thing in English (comprehension task); and when the model sentence was given in English, Ss were expected to say the same thing in French (production task). The artificiality of such a task resides in the lack of context and of "natural" reason to repeat the same thing in another language when it serves no communication purposes. So perhaps it would be worth complementing this task with another type of translation task, where the S would be made to play the role of an interpreter - thereby providing him with an opportunity for a "more natural communication situation". Swain (1972) used a similar technique with three and four year old bilingual children who were asked to tell the experimenter what a third person had said in another language because the experimenter could not understand that language. It is possible that children will enthusiastically collaborate in that sort of "game", thus by-passing to some extent the artificiality of the first type of translation described above. It is a technique that we intend to try in the near future. These two variations of the translation task - one hopefully giving the opportunity for Ss to be less task conscious - might yield different results. More work is needed in this area, not only to investigate the use of translation as a research tool, but to understand the underlying processes of translation per se.

How is the speaker's competence reflected in elicited imitation?

Based on Naiman's findings in his study mentioned above where Ss were requested to imitate supra-memory span sentences which contained selected syntactic structures, a number of conclusions can be drawn which permit us to interpret the data gathered using elicited imitation as a tool. However, two issues must first be dealt with which are important in the interpretation of these data: the first concerns the relationship between the comprehension and the production grammars; the second deals with the influence of memory factors on language processing in each of the three tasks.

From the results of Naiman's study, it appears that in second language acquisition, the comprehension grammar does not equal the production grammar. It has been found that a structure is first present in the comprehension grammar before entering the production grammar. In addition, there may be other differences between the two grammars. The production grammar may be influenced to a greater extent by the structure of the mother tongue and for a longer period of time than is the comprehension grammar. For example, a child who correctly interprets "le garçon lui donne une pomme" may spontaneously produce "le garçon donne lui une pomme", an utterance obviously influenced by English. Dumas, Selinker and Swain (in preparation) have supplied a series of examples of this sort in a paper where the "Interlanguage hypothesis" is extended to apply to data obtained with children learning a second language in a French immersion classroom.

Concerning the effect of memory, it is important to point out the influence of memory capacity on some of the specific aspects of processing involved in tasks of imitation and translation. Children with below normal memory capacities may have had trouble on all tasks because they did not possess the memory capacity to adequately process the model sentences of the given length presented to them. Because the sentences were all beyond STM capacity, memory was involved in a deeper way, namely for holding chunks for accurate processing. The 15 French syllables in the model sentences may have overloaded STM more for some children than for others. The overall influence of memory factors was probably most pervasive on the imitation task. In imitation, adequate memory capacity is initially necessary for accurate interpretation of the model sentence. Moreover, in order to subsequently repeat the sentence as it was given, the children may have also had to store extra information about the "exact form" on the model sentence.

Taking these factors into consideration, the following statements permit us to interpret the various outcomes on the imitation task:

1) If the child has sufficient STM capacity to decode the sentence, and the structure is present in his comprehension grammar, then the appropriate

lexical and syntactic processing occurs, resulting in accurate interpretation of the structure. Interpretation is the first necessary condition for accurate imitation. If the structure is not contained in the comprehension grammar, or STM capacity is insufficient, then the needed lexical and syntactic processing cannot occur and accurate comprehension will not result. Correct imitation, consequently, would be impossible as well.

2) Given sufficient memory capacity (memory necessarily interacts with processing at this stage as well) and accurate comprehension, results of encoding will depend upon the presence or absence of the structure in the child's production grammar. Depending upon this factor, the lexical and syntactic processing will produce one of four possible results:

a) The child does not possess the structure in his production grammar. In this case, correct imitation will not occur.

b) The child possesses an alternative form in his production grammar - sometimes this is an equivalent form to the given form, sometimes it is a form derived from L_1. In this case, the alternate form will occur in imitation.

c) The structure is beginning to be stabilized in the child's production grammar. In this case, accurate imitation will sometimes occur, and sometimes not. This variability will be related to performance factors such as memory, fatigue, etc.

d) The structure is present in the child's production grammar. In this case, accurate imitation will occur.

How is the speaker's competence reflected in translation?

Naiman's study has suggested that translation is a valid instrument to use to collect second language comprehension and production data. On the one hand, a comparison of the results of both comprehension tasks, one using picture-identification and the other using translation (L_2 to L_1) was found not significant; on the other hand, errors in translation committed when Ss were translating into French were for the most part the same as those made in their spontaneous production and imitation. These findings are encouraging for the future use of translation as a tool for collecting data concerned with second language comprehension and production. But, as was pointed out earlier, little is known at present about the process of translation or the demands this task makes upon children. Consequently, one must be cautious in the interpretation of such results.

For example, one of our most interesting findings which remains partially unexplained is related to the translations some children make when the TL is their native language. Sometimes they produced structures which were not found in their English spontaneous speech. These children appeared to be translating from one language into another on a word-for-word basis. If a syntactic structure was placed in one part of the sentence, or in a specific word order relationship to another structure in French, most of these children placed it in the same place or in the same word order relationship when they translated the sentence into English regardless of whether this was appropriate in English. For instance, when asked to translate "Maintenant la grande soeur de Jean-Paul met quelques livres dans son sac". these Ss would say "Now the big sister of Jean-Paul puts a few books in her bag". One wonders if productions of this kind are accounted for by an inherent difficulty of the task itself since the children did not seem to make these errors in their native language. However, not all children seemed to be translating in the same fashion. Some had the ability and facility in L_2 to chunk the second language sentences into larger and more appropriate units. These children's competence in the second language was on the whole greater than the children who were translating by substituting one French word for every English equivalent and vice versa. The data show that the "good translators" performed better on all aspects of second language competence investigated e.g., control of gender, tense, genitive and direct and indirect object structures. Variables such as sex, IQ, or digital memory span did not differentiate the "good translators" from the "poor translators". What does, is by no means clear - it may be related to NL competence. In any case, it would seem that ability to give other than word-for-word translations is correlated with many other aspects of superior performance in the second language. The results obtained using the elicited translation hold promise as being an important indicator of overall achievement in a second language.

To summarize, we have investigated the use of elicited imitation and translation as short-hand methods of collecting second language data. We are convinced that imitation taps both comprehension and production skills, and that obtained data pertaining to any particular structure can be interpreted as to its stage of acquisition. We are convinved too, that translation taps aspects of second language competence, but obviously further investigation is needed into the translation process itself, and into other variations of the translation task.

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